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TITLE: Method for representing and
comparing multimedia content

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INVENTOR-INFORMATION:

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US-CL-CURRENT: 382/190, 382/232 , 707/104.1

ABSTRACT:

    A method for generating a representation of
multimedia content by first
segmenting the multimedia content spatially and
temporally to extract objects.
Feature extraction is applied to the objects to
produce semantic and syntactic
attributes, relations, and a containment set of
content entities. The content
entities are coded to produce directed acyclic
graphs of the content entities,
where each directed acyclic graph represents a
particular interpretation of the
multimedia content.

18 Claims, 10 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 7

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Brief Summary Text - BSTX (7):
   The most recent standardization effort taken on
by the MPEG committee is
that of **MPEG-7**, formally called "Multimedia Content
Description Interface," see
"**MPEG-7** Context, Objectives and Technical Roadmap,"
ISO/IEC N2729, March 1999.
Essentially, this standard plans to incorporate a
set of **descriptors and
description** schemes that can be used to describe
various types of multimedia
content. The **descriptor and description** schemes
are associated with the
content itself and allow for fast and efficient
searching of material that is
of interest to a particular user. It is important
to note that this standard
is not meant to replace previous coding standards,
rather, it builds on other
standard representations, especially MPEG-4,
because the multimedia content can
be decomposed into different objects and each
object can be assigned a unique
set of **descriptors**. Also, the standard is
independent of the format in which
the content is stored. **MPEG-7 descriptors** can be
attached to compressed or
uncompressed data.

Brief Summary Text - BSTX (8):
    Descriptors for multimedia content can be used in a number of ways, see for
example **"MPEG-7** Applications," ISO/IEC N2728, March 1999. Most interesting,
for the purpose of the **description** below, are database search and retrieval
applications. In a simple application environment, a user may specify some
attributes of a particular object. At this low-level of representation, these
attributes may include **descriptors** that describe the texture, motion and shape
of the particular object. A method of representing and comparing shapes has
been described in U.S. patent application Ser. No. 09/326,759 "Method for
Ordering Image Spaces to Represent Object Shapes" filed on Jun. 4, 1999 by Lin
et al. One of the drawbacks of this type of **descriptor** is that it is not
straightforward to effectively combine this feature of the object with other
low-level features. Another problem with such low-level **descriptors,** in
general, is that a high-level interpretation of the object or multimedia
content is difficult to obtain. Hence, there is a limitation in the level of
representation.

Brief Summary Text - BSTX (9):
    To overcome the drawbacks mentioned above and obtain a higher-level of
representation, one may consider more elaborate **description** schemes that
combine several low-level **descriptors**. In fact, these **description** schemes may

even contain other **description** schemes, see **"MPEG-7 Description** Schemes
(V0.5)," ISO/IEC N2844, July 1999.